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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,883	09/23/2003	Scott Manalis	0492611-0510 ( MIT 10443)	2224
24280	7590	03/31/2005	EXAMINER	
CHOATE, HALL & STEWART LLP EXCHANGE PLACE 53 STATE STREET BOSTON, MA 02109			FORMAN, BETTY J	
			ART UNIT	PAPER NUMBER
			1634	

DATE MAILED: 03/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/669,883

Applicant(s)

MANALIS ET AL.

Examiner

BJ Forman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-107, 161 and 162 is/are pending in the application.
- 4a) Of the above claim(s) 8, 18, 22-27, 29-42, 45 and 47-107 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-17, 19-21, 28, 43, 44, 46, 161 and 162 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election in the reply filed on 6 December 2004 is acknowledged. Applicant's election consisted of Group I, Claims 1-46 and species:

- a) The transport method is pressure method from fluid flow;
- b) The detector is capacitors;
- c) The capture ligand is nucleic acid;
- d) The measurement method is conductivity of the microfluidic channel;
- e) The depth range is between about 100 nm and about 300 nm.

In Applicant's reply, the elected claims incorrectly listed Claims 30-42 (page 12 of the response). Because these claims depend from non-elected Claim 29, the claims are drawn to a non-elected invention.

### **Regarding the Claims as Amended:**

Claim 1 link(s) inventions I and II. The restriction requirement between the linked inventions is subject to the nonallowance of the linking claim(s), claim 1. Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including all the limitations of the allowable linking claim(s) will be entitled to examination in the instant application. Applicant(s) are advised that if any such claim(s) depending from or including all the limitations of the allowable linking claim(s) is/are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer

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applicable. *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election **without traverse** (MPEP § 818.03(a)).

Claims 108-160 are canceled.

Claims 8, 18, 22-27, 29-42, 45 and 47-107 are withdrawn from consideration.

Claims 1-7, 9-17, 19-21, 28, 43-44, 46 and 161-162 are currently under prosecution.

### ***Claim Objections***

2. Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

The claim recites methods of using the claimed apparatus i.e. the analyte is transported. The method of using a device does not further limit the structural components of the device. Therefore, the method of Claim 7 does not further limit the apparatus of Claim 1.

### ***Claim Rejections - 35 USC § 112***

#### **35 U.S.C. 112: First Paragraph, New Matter**

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-7, 9-17, 19-21, 28, 43-44, 46 and 161-162 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1, from which all elected claims depend, has been amended to recite "at least one suspended beam connected to at least one mechanically stable support". The claim has been further amended to delete "one or more detectors...." from Claim 1.

Applicant has not pointed to any support in the specification for the newly claimed apparatus and none has been found. In contrast, the specification (page 4, third full paragraph, reiterated below) specifically teaches the apparatus comprises "two" supports and "one or more detectors".

The present invention relates to an apparatus that is a label-free detector for measuring a property of an analyte. The apparatus comprises at least one suspended beam connected to **two** mechanically stable supports. The suspended beam may contain one or more microfluidic channels, and each microfluidic channel has at least one chemical species that binds to or reacts with the analyte. The **apparatus also comprises one or more detectors** for measuring a change in the one or more beams upon binding or reaction of the analyte. In one embodiment, the suspended beam is resonating.

The specification does not teach or describe an apparatus "comprising at least one" support. The newly claimed apparatus is drawn to an unlimited number of supports because the new claim language encompasses an open-ended range (i.e. "at least one") of some undescribed number. Furthermore, the specification specifically teaches the apparatus

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comprises one or more detectors. The specification does not teach or describe an apparatus without a detector as newly claimed.

Because the specification does not teach or describe the newly claimed apparatus, the amendments are deemed new matter.

MPEP 2163.06 notes "If NEW MATTER IS ADDED TO THE CLAIMS, THE EXAMINER SHOULD REJECT THE CLAIMS UNDER 35 U.S.C. 112, FIRST PARAGRAPH - WRITTEN DESCRIPTION REQUIREMENT. *IN RE RASMUSSEN*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981)." MPEP 2163.02 teaches that "Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed...If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application." MPEP 2163.06 further notes "WHEN AN AMENDMENT IS FILED IN REPLY TO AN OBJECTION OR REJECTION BASED ON 35 U.S.C. 112, FIRST PARAGRAPH, A STUDY OF THE ENTIRE APPLICATION IS OFTEN NECESSARY TO DETERMINE WHETHER OR NOT "NEW MATTER" IS INVOLVED. APPLICANT SHOULD THEREFORE SPECIFICALLY POINT OUT THE SUPPORT FOR ANY AMENDMENTS MADE TO THE DISCLOSURE" (emphasis added).

### **35 U.S.C. 112: Second Paragraph, Indefinite**

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-7, 9-17, 19-21, 28, 43-44, 46 and 161-162 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-7, 9-17, 19-21, 28, 43-44, 46 and 161-162 are indefinite in Claim 1 because the claim is drawn to an apparatus for detection an analyte but the components of the apparatus do not include a detector. Therefore it is unclear whether the apparatus detects as claimed.

Claim 14 is indefinite for the recitation "the solution" because the recitation lacks proper antecedent basis in Claim 10.

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Claim 16 is indefinite for the recitation "the drive electrode" because the recitation lacks proper antecedent basis in Claim 15.

Claim 17 is indefinite for the recitation "the surface" because the recitation lacks proper antecedent basis in Claim 16.

Claim 43 is indefinite for the recitation "the depth" because the recitation lacks proper antecedent basis in Claim 1.

Claim 44 is indefinite for the recitation "the walls" because the recitation lacks proper antecedent basis in Claim 43.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 161 and 162 are rejected under 35 U.S.C. 102(b) as being anticipated by Boisseau et al (U.S. Patent No. 4,896,966, issued 30 January 1990).

Regarding Claim 1, Boisseau et al disclose an apparatus for detecting an analyte comprising a suspended beam comprising a microfluidic channel (motility scanner #50) and

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connected to at least one mechanically stable support (support #16) wherein the channel has at least one chemical species (e.g. diluent e.g. Hepes) that reacts with the analyte (e.g. sperm) (Column 7, lines 40-50 and fig. 1-2).

Regarding Claim 161, Boisseau et al disclose the apparatus further comprising a detector for measuring a change in the beam e.g. CCD (Column 4, lines 52-67).

Regarding Claim 162, Boisseau et al disclose the apparatus wherein the beam is in a controlled environment i.e. portable housing #26 (Column 3, lines 35-40).

9. Claims 1-2 and 161-162 are rejected under 35 U.S.C. 102(b) as being anticipated by Pinkel et al (U.S. Patent No. 5,982,534, issued 9 November 1999).

Regarding Claim 1, Pinkel et al disclose an apparatus for detecting an analyte comprising a suspended beam comprising a microfluidic channel (specimen slide with grooves, Column 5, lines 27-34 or channel formed between slide and coverslip, Column 5, lines 37-47) and connected to at least one mechanically stable support (specimen holder, Column 5, lines 48-57) wherein the channel has at least one chemical species (e.g. Column 5, lines 13-26) that reacts with the analyte (sample, Column 8, line 65-column 9, line 13).

Regarding Claim 161, Pinkel et al disclose the apparatus further comprising a detector for measuring a change in the beam e.g. CCD (Column 8, lines 35-50).

Regarding Claim 162, Pinkel et al disclose the apparatus wherein the beam is in a controlled environment e.g. arms for positioning slide (Column 11, lines 19-24).

Regarding Claim 2, Pinkel et al disclose the apparatus wherein the chemical species is a capture ligand that binds analyte (Column 5, lines 16-26).



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10. Claims 1, 43-44 and 162 are rejected under 35 U.S.C. 102(a) as being anticipated by Savaran et al (J Microelectro. Systems, 6 December 2002, 11(6): 703-708).

Regarding Claim 1, Savran et al disclose an apparatus comprising at least one beam (cantilever) suspended and connected to at least one mechanically stable support wherein the beam contains microfluidic channels (trenches) having chemical species (gold) for analyte reaction (page 704, right column-page 705 and Fig. 1-3).

Regarding Claim 43, Savran et al disclose the apparatus wherein the channels have a depth of between 100 and 3000nm (page 704, right column-page 705 and Fig. 1-3).

Regarding Claim 44, Savran et al disclose the apparatus wherein the channels have a thickness of between 100 and 1200nm (page 704, right column-page 705 and Fig. 1-3).

Regarding Claim 162, Savran et al disclose the apparatus within a controlled environment e.g. pipette (Fig. 4).

11. Claims 1-2, 28, 43-44 and 161-162 are rejected under 35 U.S.C. 102(e) as being anticipated by Fritz et al (U.S. Patent Application Publication No. 2003/0073071, filed 23 July 2002).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding Claim 1, Fritz et al disclose an apparatus comprising at least one beam (cantilever, 710<sub>1</sub>, Fig. 7) suspended and connected to at least one mechanically stable support

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(mounting surface, 720, Fig. 7) wherein the beam contains microfluidic channels (sensing surface, 100<sub>1</sub>, Fig. 7 with sample containing region, 105 as illustrated in Fig. 1) having chemical species (probe molecules, 115, Fig. 1) for analyte reaction (§ 28-31).

Regarding Claim 2, Fritz et al disclose the chemical species is a capture ligand (§ 31).

Regarding Claim 28, Fritz et al disclose the detector measures conductivity (§ 8).

Regarding Claim 43, Fritz et al disclose the apparatus wherein the channels have a depth of between 100 and 3000nm (§ 44).

Regarding Claim 44, Fritz et al disclose the apparatus wherein the channels have a thickness of between 100 and 1200nm (§ 44).

Regarding Claim 161, Fritz et al disclose the apparatus further comprising detectors for measuring a change (§ 33-36).

Regarding Claim 162, Fritz et al disclose the apparatus within a controlled environment i.e. inserted into microfluidic channel (§ 14 and 36).

12. Claims 1-7, 19, 28, 43-44 and 161-162 are rejected under 35 U.S.C. 102(e) as being anticipated by Manalis (U.S. Patent Application Publication No. 2004/0038426, filed 2 January 2003).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

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Regarding Claim 1, Manalis discloses an apparatus comprising at least one beam (cantilever, 115, Fig. 1) suspended and connected to at least one mechanically stable support (support, 120, Fig. 1) wherein the beam contains microfluidic channels (110, Fig. 1) having chemical species for analyte reaction (§ 34-35).

Regarding Claim 2, Manalis discloses the chemical species is a capture ligand (§ 34).

Regarding Claim 3, Manalis discloses the apparatus wherein the beams are resonating and the detector measures resonance (§ 36).

Regarding Claim 4, Manalis disclose the apparatus wherein the capture ligand is bound to the interior surface (§ 33-34).

Regarding Claim 5, Manalis discloses the apparatus further comprising a gel and the ligand is bound to the gel (§ 33).

Regarding Claim 6, Manalis discloses the apparatus wherein the beam has two channels that meet, then separate (Fig. 1).

Regarding Claim 7, Manalis discloses the apparatus wherein the analyte is transported via pressure from fluid flow (§ 36). While Manalis discloses this functionality, the recited function does not further limit the structural components of the apparatus.

Regarding Claim 19, Manalis discloses the detectors are ligand is a nucleic acid (§ 35)

Regarding Claim 28, Manalis discloses the detector measures conductivity (§ 8).

Regarding Claim 43, Manalis discloses the apparatus wherein the channels have a depth of between 100 and 3000nm (§ 57-59).

Regarding Claim 44, Manalis discloses the apparatus wherein the channels have a thickness of between 100 and 1200nm (§ 57-59).

Regarding Claim 161, Manalis discloses the apparatus further comprising detectors for measuring a change (§ 33 and 39).

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Regarding Claim 162, Manalis discloses the apparatus within a controlled environment i.e. multiple beans attached to a single base for calorimetric and mass measurements (§ 26 and Fig. 4).

13. Claims 1-7, 9-14, 43-44 and 161 are rejected under 35 U.S.C. 102(e) as being anticipated by Geli (U.S. Patent Application Publication No. 2003/0027354, filed 10 June 2002).

Regarding Claim 1, Geli discloses an apparatus comprising at least one beam (cantilever, 13, Fig. 3-4) wherein the beam contains microfluidic channels i.e. made of porous material (§ 270) and connected to microchannels (claims 15) having chemical species for analyte reaction i.e. functional groups and capture molecules (§ 270-272). Geli further teach measurement of cantilever flex and/or resonance (§ 262 and 263) which requires freedom of movement for some portion of the cantilevers. The claimed "suspended" is interpreted to encompass the portion of cantilever feed to flex and/or resonate.

Regarding Claim 161, Geli discloses the apparatus further comprising detectors for measuring a change (§ 21).

Regarding Claim 2, Geli discloses the chemical species is a capture ligand (§ 21-23).

Regarding Claim 3, Geli discloses the apparatus wherein the beams are resonating and the detector measures resonance (§ 263).

Regarding Claim 4, Geli discloses the apparatus wherein the capture ligand is bound to the interior surface or the microchannel associated with the cantilever (§ 10 and 36).

Regarding Claim 5, Geli discloses the apparatus further comprising a gel and the ligand is bound to the gel (§ 10).

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Regarding Claim 6, Geli discloses the apparatus wherein the beam has two channels that meet, then separate downstream (§ 10).

Regarding Claim 7, Geli discloses the apparatus wherein the analyte is transported via pressure from fluid flow (§ 191 and 327). While Geli discloses this functionality, the recited function does not further limit the structural components of the apparatus.

Regarding Claim 9, Geli discloses the apparatus wherein the resonance is driven by electrodes (§ 268).

Regarding Claim 10 Geli discloses the apparatus wherein one of the electrodes is common (§ 268, lines 4-6).

Regarding Claims 11-12 Geli discloses the electrodes are gold via electrical connection to gold cantilevers (§ 266-268).

Regarding Claim 13, Geli discloses the apparatus wherein the common electrode is in contact with each cantilever (§ 268, lines 4-8 and § 2690).

Regarding Claim 14, Geli discloses the apparatus wherein the solution is electrolyte (§ 99, lines 22-26 and § 175).

Regarding Claim 43, Geli discloses the apparatus wherein the channels have a depth of between 100 and 3000nm (§ 61).

Regarding Claim 44, Geli discloses the apparatus wherein the channels have a thickness of between 100 and 1200nm (§ 61).

### ***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject

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matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 15-17, 19-21, 28, 46 and 162 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geli (U.S. Patent Application Publication No. 2003/0027354, filed 10 June 2002) in view of Kley (U.S. Patent No. 6,337,479, filed 21 July 1999).

Regarding Claims 46 and 162, Geli discloses an apparatus comprising at least one beam (cantilever, 13, Fig. 3-4) wherein the beam contains microfluidic channels i.e. made of porous material (§ 270) and connected to microchannels (claims 15) having chemical species for analyte reaction i.e. functional groups and capture molecules (§ 270-272). Geli further teaches measurement of cantilever flex and/or resonance (§ 262 and 263) which requires freedom of movement for some portion of the cantilevers. The claimed "suspended" is interpreted to encompass the portion of cantilever feed to flex and/or resonate.

Geli teaches the apparatus comprises detection means are selected according to the nature of the desired detection (§ 21) but they do not teach capacitors or detection of conductivity. Geli is silent regarding a controlled and low-pressure environment for the apparatus.

However, Kley teaches a similar apparatus comprising a suspended cantilever for analyte detection or measurement (Fig. 1-3) wherein the apparatus functions more accurately in a controlled and low-pressure (vacuum) environment (Column 30, lines 35-42). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the controlled, low-pressure environment of Kley to the apparatus of Geli for the expected benefit of increasing apparatus accuracy as taught by Kley (Column 30, lines 35-42).

Regarding Claim 15-17, Geli teaches the apparatus comprises detection means are selected according to the nature of the desired detection (§ 21) but they do not teach capacitors. Kley teaches their similar apparatus wherein the detectors are capacitors comprising two capacitor plates whereby a gap formed between the plates is measured via a

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change in voltage between the plates to provides a calibrating measurement (Column 34, lines 1-27). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the capacitors of Kley to the apparatus of Geli for the expected benefit of calibrating measurement as taught by Kley (Column 34, lines 1-27).

Regarding Claim 19-21, Geli teaches the apparatus is used for analysis of biological samples (Abstract) but they are silent regarding nucleic acids and single or double stranded DNA. Kley teaches their similar apparatus is used for biological molecules e.g. DNA (Column 9, lines 50-55). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to provide nucleic acids (e.g. single or double stranded DNA) to the apparatus of Geli based on their suggested biological applications (Abstract) and further based on the well know use of DNA in the similar apparatus of Kley (Column 9, lines 50-55).

Regarding Claim 28, Geli teaches the cantilever has a conductive coating (e.g. gold) but they do not teach a detector for conductivity. Kley teaches their similar apparatus wherein the cantilever has a conductive coating and wherein the detector measures conductivity of the cantilever to thereby calibrate the apparatus (Column 20, lines 15-45). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the apparatus of Geli with the conductivity detector of Kley for the expected benefit of calibrating the apparatus as taught by Kley (Column 20, lines 15-45).

### ***Double Patenting***

16. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground

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provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

17. Claims 1-7, 9-17, 19-21, 28, 43-44 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-23 and 30-33 of copending Application No. 10/201,333. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to very similar apparatus and differ only in the arrangement of the limitations within the claim sets. For example, instant dependent Claim 2 is drawn to a capture ligand, which is further defined in Claim 19 as a nucleic acid. In slight contrast, independent Claim 1 of the '333 application is drawn to a probe, complementary to a molecule of interest. As such the claim sets are drawn to very similar apparatus that are not patentably distinct.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

18. Claims 1-7, 9-17, 19-21, 28, 43-44 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 13-24 of copending Application No. 10/336,549. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to similar apparatus that differ only in the terminology and grouping of the limitations. For example, instant Claim 1 is drawn to a suspended beam having channels and dependent Claim 161 is further drawn to detectors. In slight contrast, independent Claim 13 of the '549 application is drawn channels and a detector and dependent Claim 19 defines the channel as having mechanical resonance. Both claim sets require channel flexibility and differ only in the



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terminology used to describe the flex. As such the claim sets are drawn to very similar apparatus that are not patentably distinct.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### **Conclusion**

19. No claim is allowed.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

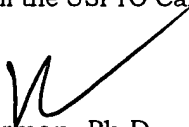
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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Art Unit: 1634  
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